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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/560,353

05/26/2006

Hiroyuki Ochiai

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08/29/2008

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ALEXANDRIA, VA 22314

EXAMINER

EVANS, GEOFFREY S

ART UNIT

PAPER NUMBER

3742

NOTIFICATION DATE

DELIVERY MODE

08/29/2008

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary	Application No. 10/560,353	Applicant(s) OCHIAI ET AL.	
	Examiner Geoffrey S. Evans	Art Unit 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 64-85 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 64-85 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. ____. |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>20060308, 20070125</u> . | 6) <input type="checkbox"/> Other: ____. |

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DETAILED ACTION

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

3. Claims 64,72,73,75,76 and 77 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dzugan et al. in U.S. patent No. 5,071,054 in view of Brown et al. in U.S. Patent No. 6,417,477. Dzugan et al. teaches repairing a cast superalloy by removing (by grinding) a portion defining the defect to form a recess portion and filling the volume by welding or a similar technique, and smoothing the surface. Dzugan does not teach using deposits from an electric spark machine. Brown et al. teach using deposits from an electric spark machine to fill a hole (see column 3, lines 23-30 and column 9, lines 49-65) by using an electrode (electrode IN-718) made of a copper alloy (see table I), which in one embodiment can be used to repair a gas turbine engine blade

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tip(see column 9,lines 64-65). It would have been obvious to adapt Dzugan et al. in view of Brown et al. to provide this as a functionally equivalent method of filling the recess portion by volume and to smooth the surface to repair a gas turbine engine blade tip.

4. Claims 65 and 67 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dzugan et al. in U.S. patent No. 5,071,054 in view of Brown et al. in U.S. Patent No. 6,417,477 as applied to claim 64 above, and further in view of Moro et al. in U.S. Patent No. 6,602,561 and Ullmann et al. in U.S. Patent No. 3,041,442. Moro et al. teach the equivalence of a mechanical removing process such as grinding, and a discharging process (see column 5, lines 36-40). Ullmann et al. teach using an electrodischarging process to produce a recess in a workpiece. It would have been obvious to adapt Dzugan et al. in view of Brown et al. and Moro et al. and Ullmann et al. to provide this to substitute an electric spark machining process (i.e. electric discharge machining) instead of the grinding process as an art recognized equivalent method of removing a portion defining the defect.

5. Claims 66 and 69 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dzugan et al. in view of Brown et al. as applied to claim 64, and further in view of Wilkins et al. in U.S. Patent No. 6,532,656. Wilkins et al. teach after welding (which is analogous to deposition in the instant application), machining to obtain the desired finished or restored dimensions (see column 4, lines 17-19). It would have been obvious to adapt Dzugan et al. in view of Brown et al. and Wilkins et al. to provide this to restore the workpiece to its desired dimensions.

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6. Claims 68 and 71 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dzugan et al. in view of Brown et al. as applied to claim 64, and further in view of Saito et al. in Japan Patent No. 9-19,829. Saito et al. teach forming a hard and dense deposition by generating a chemical reaction between an electrode and carbon in a processing fluid. It would have been obvious to adapt Dzugan et al. in view of Brown et al. and Saito et al. to provide this to form a hard and dense coating on the workpiece.

7. Claim 70 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dzugan et al. in view of Brown et al. and Wilkins et al. as applied to claim 66 above, and further in view of Magara et al. in U.S. Patent No. 5,698,114. Magara et al. teach using a silicon electrode (e.g. see column 7, lines 9 and 10) and a dielectric fluid made of kerosene (see column 13, lines 27-28), i.e. paraffin (C_nH_{2n+2}), which is a kind of alkane hydrocarbon to coat a workpiece, so that the workpiece is corrosion-resistant and wear-resistant. It would have been obvious to adapt Dzugan et al. in view of Brown et al., Wilkins and Magara et al. to provide this to create a wear resistant layer on the workpiece.

8. Claim 74 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dzugan et al. in view of Brown et al. and Wilkins et al. as applied to claim 66, and further in view of Mannava et al. in U.S. patent No. 5,675,892. Mannava et al. teaches after filling a void, peening the workpiece to extend the useful life of the workpiece (see column 3, lines 24-27). It would have been obvious to adapt Dzugan in view of Brown et al., Wilkins et al., and Mannava et al. to provide this to extend the useful life of the workpiece.

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9. Claims 78 and 79 are rejected under 35 U.S.C. 103(a) as being unpatentable over Dzugan et al. in U.S. Patent No. 5,071,054 in view of Brown et al. in U.S. Patent No. 6,417,477 and Magara et al. in U.S. Patent No. 5,698,114. Dzugan et al. teaches repairing a cast superalloy by removing (by grinding) a portion defining the defect to form a recess portion and filling the volume by welding or a similar technique, and smoothing the surface. Dzugan does not teach using deposits from an electric spark machine. Brown et al. teach using deposits from an electric spark machine to fill a hole (see column 3, lines 23-30 and column 9, lines 49-65) by using an electrode (electrode IN-718) made of a copper alloy (see table I), which in one embodiment can be used to repair a gas turbine engine blade tip (see column 9, lines 64-65). Magara et al. teach using a silicon electrode (e.g. see column 7, lines 9 and 10) and a dielectric fluid made of kerosene (see column 13, lines 27-28), i.e. paraffin, which is a kind of alkane hydrocarbon to coat a workpiece, so that the workpiece surface is corrosion-resistant and wear resistant. It would have been obvious to adapt Dzugan et al. in view of Brown et al. and Magara et al. to provide this to fill the recess with wear resistant material to reduce wear.

10. Claim 80 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dzugan et al. in view of Brown et al. and Magara et al. as applied to claim 78 above, and further in view of Wilkins et al. in U.S. Patent No. 6,532,656. Wilkins et al. teach after welding (which is analogous to deposition in the instant application), machining to obtain the desired finished or restored dimensions (see column 4, lines 17-19). It would have

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been obvious to adapt Dzugan et al. in view of Brown et al., Magara et al. and Wilkins et al. to provide this to restore the workpiece to its desired dimensions.

11. Claim 81 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dzugan et al. in view of Brown et al., Magara et al. and Wilkins et al. as applied to claim 80 above, and further in view of Saito et al. in Japan Patent No. 9-19,829. Saito et al. teach forming a hard and dense deposition on a workpiece by a chemical reaction between the electrode and the carbon in the processing fluid. It would have been obvious to adapt Dzugan et al. in view of Brown et al., Magara et al., Wilkins et al. and Saito et al. to provide this to form a hard and dense coating on the surface of the deposition filling the recess portion.

12. Claim 82 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dzugan et al. in U.S. Patent No. 5,071,054 in view of Brown et al. and Magara et al. as applied to claims 78 and 80 above, and further in view of Saito et al. in Japan Patent No. 9-19,829. Saito et al. teach forming a hard and dense deposition on a workpiece by a chemical reaction between the electrode and carbon in the processing fluid. It would have been obvious to adapt Dzugan et al. in view of Brown et al., Magara et al. and Saito et al. to provide this to form a hard and dense coating on the exterior of the deposition filling the recess portion.

13. Claim 83 is rejected under 35 U.S.C. 103(a) as being unpatentable over Dzugan et al. in view of Brown et al., Magara et al. and Wilkins et al. as applied to claim 80 above, and further in view of Mannava et al. in U.S. Patent No. 5,675,892. Mannava et al. teach after filling a void, peening the workpiece to extend the useful life of the

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workpiece (see column 3, lines 24-27). It would have been obvious to adapt Dzugan et al. in view of Brown et al., Magara et al., Wilkins et al. and Mannava et al. to provide this to extend the useful life of the workpiece.

14. Claim 84 is rejected under 35 U.S.C. 103(a) as being unpatentable over Sakai in Japan Patent No. 63-7234 in view of Futamura in U.S. Patent No. 5,951,884. Sakai discloses an electric spark machine with a processing head having two electrodes (elements 24 as shown in figures 1 and 9) and a power supply (element 22) for generating discharges between the electrodes and the workpiece. Futamura teaches a table configured to move on an XY plane and a jig supporting the workpiece (see column 3, lines 22-30). It would have been obvious to adapt Sakai in view of Futamura to provide this to support and move the workpiece during machining. Please note that in claim 84 on line 6 the language “for deposition” is considered to be merely a statement of intended use.

15. Claim 85 is rejected under 35 U.S.C. 103(a) as being unpatentable over Ishiwata in Japan Patent No. 8-290,332 in view of Futamura in U.S. Patent No. 5,951,884 and Sakai in Japan Patent No. 63-7234. Ishiwata teaches an electric spark machine comprising a processing head (element 7) that detachably supports a holder supporting an electrode. Ishiwata further teaches a replacement unit to change electrode holders (elements 21) that each support an electrode (element 11). Futamura teaches a table and a jig configured to support an electrode (see column 3, lines 22-30). Sakai teach an electric power source to supply electricity to the processing head to generate electric discharges between an electrode and the workpiece. It would have been obvious to

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adapt Ishiwata in view of Futamura and Sakai to provide this to replace electrodes and their associated holders and to supply current for electric discharge machining.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Geoffrey S. Evans whose telephone number is (571)-272-1174. The examiner can normally be reached on Mon-Fri 7:00AM to 3:30 PM (flexible).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571)-272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Geoffrey S Evans/

Primary Examiner, Art Unit 3742